

This document gives pertinent information concerning the reissuance of the VPDES Permit listed below. This permit is being processed as a **Minor, Municipal** permit. The discharge results from the operation of a 0.1 MGD wastewater treatment plant. This permit action consists of updating the proposed effluent limits to reflect the current Virginia WQS (effective January 6, 2011) and updating permit language as appropriate. The effluent limitations and special conditions contained in this permit will maintain the Water Quality Standards of 9VAC25-260 et seq.

1. Facility Name and Mailing Address:	Shenandoah Crossing STP 174 Horseshoe Circle Gordonsville, VA 22942	SIC Code :	4952 WWTP
Facility Location:	174 Horseshoe Circle Gordonsville, VA 22942	County:	Louisa
Facility Contact Name:	Tim Bernhardt	Telephone Number:	540-832-9508
Facility E-mail Address:	Tim.Bernhardt@bluegreencorp.com		

2. Permit No.:	VA0076678	Expiration Date of previous permit:	06/03/2013
Other VPDES Permits associated with this facility:	VAN030119 (Nutrient General Permit)		
Other Permits associated with this facility:	WP4-07-2015 (VWP)		
E2/E3/E4 Status:	NA		

3. Owner Name:	Leisure Capital Corporation		
Owner Contact/Title:	Eric Piner, Director of Construction and Development	Telephone Number:	321-354-6087
Owner E-mail Address:	Eric.Piner@bluegreencorp.com		

4. Application Complete Date:	3/27/2013		
Permit Drafted By:	Anna Westernik	Date Drafted:	04/01/2013
Draft Permit Reviewed By:	Alison Thompson	Date Reviewed:	4/09/2013
WPM Review By:	Bryant Thomas	Date Reviewed:	04/15/2013
Public Comment Period :	Start Date: 06/07/13	End Date:	07/08/2013

5. Receiving Waters Information: It is staff's professional judgment that the critical flows are 0.0 MGD due to the outfall being located directly below a spillway.

Receiving Stream Name :	Lickinghole Creek	Stream Code:	8-LKH
Drainage Area at Outfall:	2.73 sq.mi.	River Mile:	0.54
Stream Basin:	York River	Subbasin:	None
Section:	3	Stream Class:	III
Special Standards:	None	Waterbody ID:	VAN-F01R
7Q10 Low Flow:	0.0 MGD	7Q10 High Flow:	0.0 MGD
1Q10 Low Flow:	0.0 MGD	1Q10 High Flow:	0.0 MGD
30Q10 Low Flow:	0.0 MGD	30Q10 High Flow:	0.0 MGD
Harmonic Mean Flow:	0.0 MGD	30Q5 Flow:	0.0 MGD

6. Statutory or Regulatory Basis for Special Conditions and Effluent Limitations:

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> State Water Control Law | <input type="checkbox"/> EPA Guidelines  |
| <input checked="" type="checkbox"/> Clean Water Act         | <input checked="" type="checkbox"/> Water Quality Standards                    |
| <input checked="" type="checkbox"/> VPDES Permit Regulation | <input checked="" type="checkbox"/> Other (9VAC25-820 Nutrient General Permit) |
| <input checked="" type="checkbox"/> EPA NPDES Regulation    |  |

7. Licensed Operator Requirements: Class III

8. Reliability Class: Class II

9. Permit Characterization:

- |   |   |   |
|---|---|---|
| <input checked="" type="checkbox"/> Private | <input checked="" type="checkbox"/> Effluent Limited              | <input type="checkbox"/> Possible Interstate Effect       |
| <input type="checkbox"/> Federal            | <input checked="" type="checkbox"/> Water Quality Limited         | <input type="checkbox"/> Compliance Schedule Required     |
| <input type="checkbox"/> State              | <input type="checkbox"/> Whole Effluent Toxicity Program Required | <input type="checkbox"/> Interim Limits in Permit         |
| <input type="checkbox"/> POTW               | <input type="checkbox"/> Pretreatment Program Required            | <input type="checkbox"/> Interim Limits in Other Document |
| <input checked="" type="checkbox"/> TMDL    |   |   |

10. Wastewater Sources and Treatment Description:

The Shenandoah Crossing Resort is a community that consists of condominiums, a lodge, a manor house, time-share cabins, a recreational vehicle area, a campground, and single family homes that contribute to the 0.1 MGD discharge. Sewage created at the Shenandoah Crossing Resort is treated by an extended aeration sewage treatment plant with dual treatment trains. Influent flow travels through a screen to remove solids, an equalization tank, denitrification and nitrification treatment, chlorination, and dechlorination. After dechlorination, the effluent is metered and is discharged to a dry ditch before entry below the spillway of Izac Lake and subsequently, Lickinghole Creek. Liquid sludge is transported from the aerated digester to the Louisa Regional STP for further treatment and disposal.

The primary treatment unit consists of influent flow through a screen prior to entering an equalization tank. At the time of this visit, the screen was clogged and solids were entering the equalization basin. To reduce solids entering the sewage treatment plant, upgrading the primary treatment unit is recommended. Due to the intermittent nature of the population, an equalization tank is needed to distribute the flow. Alum is added to the equalization tank to aid with nitrification. An aerated mixer is present in the tank.

Flow from the equalization basin enters a dual secondary treatment train operating in parallel that consists of denitrification, nitrification, denitrification, and aeration. A fine mist is sprayed in the aeration tanks to assist in controlling floaties. Alum can be added at the end of the aeration tank to assist in phosphorus removal. However, this is currently not being done.

The effluent from secondary treatment enters two clarifiers and subsequently, two anthracite coal and sand gravity filters.

Disinfection and dechlorination is accomplished through twin tablet chlorination and dechlorination units. The flow is then metered before traveling down a slope for additional aeration prior to entering Lickinghole Creek below the spillway of Izac Lake.

See Attachment 1 for a facility schematic/diagram and aerial view of the treatment plant.

TABLE 1 – Outfall Description				
Outfall Number	Discharge Sources	Treatment	Design Flow(s)	Outfall Latitude/Longitude
001	Domestic Wastewater	See Item 10 above.	0.1 MGD	38° 04' 32" N 78° 08' 57" W
See Attachment 2 (Boswell's Tavern Topographic map – 172C).				

**11. Sludge Treatment and Disposal Methods:**

Sludge is wasted to a 20,000 gallon holding tank located on the west side of the anoxic tank. Shenandoah Crossing contracts with a sludge hauler as needed to transport the wasted sludge to the Louisa Regional WWTP (VA0067954) for further treatment.

12. Discharges, Intakes, Monitoring Stations, Other Items in Vicinity of Discharge

TABLE 2 DISCHARGES WITHIN WATERBODY VAN-F01R			
Individual VPDES Permits Discharging to Waterbody VAN-F01R			
Description	Type	Latitude/ Longitude	Rivermile
VA0021105 -- Gordonsville STP	0.94 MGD Municipal Wastewater Discharge	37° 07' 30" 78° 11' 59"	0.23 South Anna River, UT
VA0088706 -- South Creek, Zion Crossroads STP	0.0395 MGD Municipal Wastewater Discharge	37° 58' 22" 78° 12' 40"	3.1 Central Branch, UT
VA0091332 -- Outfall 001, Old Dominion Electric Cooperative (Louisa)	0.05 MGD Industrial Wastewater Discharge	38° 06' 56" 78° 13' 02"	0.27 Happy Creek, UT
VA0091332 -- Outfall 002, Old Dominion Electric Cooperative (Louisa)	0.05 MGD Industrial Wastewater Discharge	38° 07' 01" 78° 12' 49"	0.71 Happy Creek, UT
VA0092533 -- Klockner Pentaplast of America	0.0058 MGD Industrial Wastewater Discharge	38° 07' 02" 78° 12' 04"	0.26 South Anna River, UT
VA0087033 -- Dominion (Gordonsville Power Station)	0.056 MGD Industrial Wastewater Discharge	38° 07' 24" 78° 12' 19"	100.53 South Anna River
VA0076678 -- Shenandoah Crossing STP	0.1 MGD Municipal Wastewater Discharge	38° 04' 32" 78° 08' 57"	0.54 Lickinghole Creek
VA0090743 Zion Crossroads WWTP (001)	0.7 MGD Municipal Wastewater Discharge	38° 00' 5.1" 77° 11' 49.8"	3.17 Camp Creek Impoundment
General Permits Discharging to Waterbody VAN-F01R			
Single Family Homes			
Permit Number	Facility Name	Receiving Stream	
VAG406455	Seymour George Property	South Anna River, UT	
VAG406484	Haney Heather and Carol Residence	Bowles Creek, UT	
VAG406474	East End Farm	Hudson Creek, UT	
VAG406049	Annandale Land Trust Residence	South Anna River, UT	
VAG406496	Nolting Elisabeth Aiken Residence	Fielding Creek, UT	
Storm Water Industrial			
Permit Number	Facility Name	Receiving Stream	
VAR051812	Schneider National Carriers 064	UT, to Central Branch Creek	
VAR050969	Trus Joist - Gordonsville Logyard	South Anna River, UT	
VAR050848	Klockner Pentaplast of America Inc - Gordonsville	UT, South Anna River	

**13. Material Storage:**

TABLE 3 – MATERIAL STORAGE		
Materials Description	Volume Stored	Spill/Stormwater Prevention Measures
Chlorine Tablets	Four 5-Gallon Buckets	Stored in a building
Bisulfite Tablets	Four 5-Gallon Buckets	Stored in a building
Alum	Four 50-Gallon Drums	None*
Soda Ash	Twenty 50-lb. Bags	Stored in a building
Liquid Chlorine for Pools	Four 50-Gallon Drums	None*
Powdered Chlorine for Wells	One 100-lb. Bucket	None*
Sodium Ortho Polyphosphate for Wells	Three 5-Gallon Containers	None*

\*All chemicals shall be stored in a manner to prevent incidental discharge to waterways. See Part I.C.3 of the permit.

**14. Site Inspection:**

Performed by Anna Westernik on April 3, 2013 (see **Attachment 3**).

**15. Receiving Stream Water Quality and Water Quality Standards:**a) Ambient Water Quality Data

There is no monitoring data for Lickinghole Creek. Lickinghole Creek flows into the South Anna River. The nearest downstream DEQ monitoring station is 8-SAR089.35, which is located on the South Anna River at the Route 613 bridge crossing. Station 8-SAR089.35 is located approximately 6.22 rivermiles downstream from the Outfall of VA0076678. The following is a monitoring summary for this station as taken from the Draft 2012 Integrated Assessment\*:

Class III, Section 3.

DEQ ambient monitoring station 8-SAR089.35, at Route 613. Citizen Monitoring Station 8SAR-F02-HGSI.

*E. coli monitoring finds a bacterial impairment, resulting in an impaired classification for the recreation use. This impairment is nested within the downstream completed bacteria TMDL for the South Anna River. The aquatic life use is considered fully supporting. The fish consumption use was not assessed.*

*The wildlife use information from the 2010 assessment is as follows:  
The wildlife use is considered fully supporting.*

\* Virginia's Draft 2012 Integrated Report (IR) has been through the public comment period and reviewed by EPA. The 2012 IR is currently awaiting final approval.

b) 303(d) Listed Stream Segments and Total Maximum Daily Loads (TMDLs)

Waterbody Name	Impaired Use	Cause	Distance From Outfall	TMDL completed	WLA	Basis for WLA	TMDL Schedule
<i>Impairment Information in the Draft 2012 Integrated Report*</i>							
South Anna River	Recreation	<i>E. coli</i>	0.54 miles	Yes: Pamunkey River Basin Bacteria TMDL	1.74E+11 cfu/year	126 cfu/100ml --- 0.1 MGD	TMDL Completed in 2006

Significant portions of the Chesapeake Bay and its tributaries are listed as impaired on Virginia's 303(d) list of impaired waters for not meeting the aquatic life use support goal, and the 2010 Virginia Water Quality Assessment 305(b)/303(d) Integrated Report indicates that much of the mainstem Bay does not fully support this use support goal under Virginia's Water Quality Assessment guidelines. Nutrient enrichment is cited as one of the primary causes of impairment. EPA issued the Bay TMDL on December 29, 2010. It was based, in part, on the Watershed Implementation Plans developed by the Bay watershed states and the District of Columbia.

The Chesapeake Bay TMDL addresses all segments of the Bay and its tidal tributaries that are on the impaired waters list. As with all TMDLs, a maximum aggregate watershed pollutant loading necessary to achieve the Chesapeake Bay's water quality standards has been identified. This aggregate watershed loading is divided among the Bay states and their major tributary basins, as well as by major source categories [wastewater, urban storm water, onsite/septic agriculture, air deposition. Fact Sheet Section 17.e provides additional information on specific nutrient limitations for this facility to implement the provisions of the Chesapeake Bay TMDL.

The full planning statement is found in **Attachment 4**.

c) Receiving Stream Water Quality Criteria

Part IX of 9VAC25-260(360-550) designates classes and special standards applicable to defined Virginia river basins and sections. The receiving stream, Lickinghole Creek, is located within Section 3 of the York River Basin, and is a Class III water.

At all times, Class III waters must achieve a dissolved oxygen (D.O.) of 4.0 mg/L or greater, a daily average D.O. of 5.0 mg/L or greater, a temperature that does not exceed 32°C, and must maintain a pH of 6.0-9.0 standard units (S.U.).

**Attachment 5** details all water quality criteria applicable to the receiving stream.

Ammonia:

Ammonia criteria for this facility will not be recalculated for this permit reissuance since the TKN limit is 3.0 mg/L. It is staff's best professional judgment that a TKN effluent limitation of 3.0 mg/L or less will result in no ammonia being present in the discharge.

Metals Criteria:

The Water Quality Criteria for some metals are dependent on the hardness of the receiving stream and/or the sewage effluent (expressed as mg/L calcium carbonate). Since the 7Q10 and the 1Q10 of the receiving stream have been determined to be 0.0 MGD, staff used an effluent hardness value of 94 mg/L obtained from sampling conducted on February 1, March 5, March 11, and March 19, 2013 to calculate metals criteria. The effluent hardness used in the previous permit reissuance to calculate metals criteria was 110 mg/L.

Bacteria Criteria:

The Virginia Water Quality Standards at 9VAC25-260-170A state that the following criteria shall apply to protect primary recreational uses in surface waters:

*E. coli* bacteria per 100 ml of water shall not exceed a monthly geometric mean of the following:

	Geometric Mean <sup>1</sup>
Freshwater <i>E. coli</i> (N/100 ml)	126

<sup>1</sup>For a minimum of four weekly samples taken during any calendar month.

d) Receiving Stream Special Standards

The State Water Control Board's Water Quality Standards, River Basin Section Tables (9VAC25-260-360, 370 and 380) designates the river basins, sections, classes, and special standards for surface waters of the Commonwealth of Virginia. The receiving stream, Lickinghole Creek, is located within Section 3 of the York River Basin. This section has not been designated with a special standard.

e) Threatened or Endangered Species

The Virginia DGIF Fish and Wildlife Information System Database was searched on January 25, 2013 for records to determine if there are threatened or endangered species in the vicinity of the discharge. The following threatened or endangered species were identified within a 2 mile radius of the discharge: Upland Sandpiper, Loggerhead Shrike, Appalachian Grizzled Skipper, Green Floater, and Loggerhead Migrant Shrike. The limits proposed in this draft permit are protective of the Virginia Water Quality Standards and protect the threatened and endangered species found near the discharge.

**16. Antidegradation (9VAC25-260-30):**

All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The receiving stream has been classified as Tier 1 because the critical flows for the stream have been determined to be 0.0 MGD due to the outfall being located downstream of the lake spillway. During extreme drought conditions, overflow from the lake would not occur. Permit limits proposed have been established by determining wasteload allocations resulting in attaining and/or maintaining all water quality criteria that apply to the receiving stream, including narrative criteria. These wasteload allocations will provide for the protection and maintenance of all existing uses.

**17. Effluent Screening, Wasteload Allocation, and Effluent Limitation Development:**

To determine water quality-based effluent limitations for a discharge, the suitability of data must first be determined. Data is suitable for analysis if one or more representative data points is equal to or above the quantification level ("QL") and the data represent the exact pollutant being evaluated.

Next, the appropriate Water Quality Standards (WQS) are determined for the pollutants in the effluent. Then, the Wasteload Allocations (WLAs) are calculated. Since the critical flows have been determined to be zero, the WLAs are equal to the WQS at this outfall location. The WLA values are then compared with available effluent data to determine the need for effluent limitations. Effluent limitations are needed if the 97th percentile of the daily effluent concentration values is greater than the acute wasteload allocation or if the 97th percentile of the four-day average effluent concentration values is greater than the chronic wasteload allocation. In the case of ammonia evaluations, limits are needed if the 97th percentile of the thirty-day average effluent concentration values is greater than the

chronic WLA. Effluent limitations are then calculated based upon the most limiting WLA, the required sampling frequency and statistical characteristics of the effluent data.

a) Effluent Screening:

Effluent data obtained from the permit application and discharge monitoring reports has been reviewed and determined to be suitable for evaluation. A wasteload allocation analysis must be conducted for Total Residual Chlorine because it is used in the disinfection process and Total Recoverable Copper because it has been found to be present in the discharge. Please see **Attachment 6** for a summary of effluent Total Recoverable Copper data.

b) Mixing Zones and Wasteload Allocations (WLAs):

Wasteload allocations (WLAs) are calculated for those parameters in the effluent with the reasonable potential to cause an exceedance of water quality criteria. The basic calculation for establishing a WLA is the steady state complete mix equation:

$$WLA = \frac{C_o [Q_e + (f)(Q_s)] - [(C_s)(f)(Q_s)]}{Q_e}$$

Where:

WLA	=	Wasteload allocation
C <sub>o</sub>	=	In-stream water quality criteria
Q <sub>e</sub>	=	Design flow
Q <sub>s</sub>	=	Critical receiving stream flow (1Q10 for acute aquatic life criteria; 7Q10 for chronic aquatic life criteria; 30Q10 for ammonia criteria; harmonic mean for carcinogen-human health criteria; and 30Q5 for non-carcinogen human health criteria)
f	=	Decimal fraction of critical flow
C <sub>s</sub>	=	Mean background concentration of parameter in the receiving stream.

The water segment receiving the discharge via Outfall 001 is considered to have a 7Q10, 1Q10, and 30Q10 of 0.0 MGD. As such, there is no mixing zone and the WLA is equal to the C<sub>o</sub>.

Staff derived wasteload allocations where parameters are reasonably expected to be present in an effluent (e.g., total residual chlorine where chlorine is used as a means of disinfection) and where effluent data indicate the pollutant is present in the discharge above quantifiable levels. With regard to the Outfall 001 discharge, ammonia as nitrogen is likely present since this is a WWTP treating sewage, total residual chlorine may be present since chlorine is used for disinfection, and the discharge monitoring report data indicate that copper is present in the discharge. **Attachment 5** details WLA derivations for these pollutants.

c) Effluent Limitations Toxic Pollutants, Outfall 001

9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits.

The VPDES Permit Regulation at 9VAC25-31-230.D requires that monthly and weekly average limitations be imposed for continuous discharges from POTWs and monthly average and daily maximum limitations be imposed for all other continuous non-POTW discharges.

1) Ammonia as N/TKN:

The facility will be given a year round TKN limit of 3.0 mg/L. A TKN limit of 3.0 mg/L assumes that ammonia is removed and that the remaining nitrogen is in the form of refractory organic compounds that will not be easily oxidized. The weekly average limit will be 4.5 mg/L based on a multiplier of 1.5 times the monthly average.



2) Total Residual Chlorine:

Chlorine is used for disinfection and is potentially in the discharge. Staff calculated WLAs for total residual chlorine (TRC) using current critical flows. In accordance with current DEQ guidance, staff used a default data point of 0.2 mg/L and the calculated WLAs to derive limits. A monthly average of 0.008 mg/L and a weekly average limit of 0.010 mg/L are proposed for this discharge (see **Attachment 7**).

3) Metals:

Based on new information, hardness and copper data, a monthly average limit of 11 µg/L is needed for Total Recoverable Copper. See **Attachment 7** for derivation of the limits.

d) Effluent Limitations and Monitoring, Outfall 001 – Conventional and Non-Conventional Pollutants

No changes to dissolved oxygen (D.O.), carbonaceous biochemical oxygen demand-5 day (CBOD<sub>5</sub>), total suspended solids (TSS), total kjeldahl nitrogen (TKN), and pH limitations are proposed.

D.O., CBOD<sub>5</sub> and TKN limitations are based on best professional judgment and Guidance Memo 00-2011. This guidance is applicable to waters that cannot be easily modeled. A discharge meeting these limits will not normally violate the stream standards even if the stream consists of 100% effluent. It is staff's practice to equate the Total Suspended Solids limits (TSS) with the CBOD<sub>5</sub> limits. TSS limits are established to equal CBOD<sub>5</sub> limits since the two pollutants are closely related in terms of treatment of domestic sewage.

pH limitations are set at the water quality criteria.

*E. coli* limitations are in accordance with the Water Quality Standards at 9VAC25-260-170.

e) Effluent Annual Average Limitations and Monitoring, Outfall 001 – Nutrients

VPDES Regulation 9VAC25-31-220(D) requires effluent limitations that are protective of both the numerical and narrative water quality standards for state waters, including the Chesapeake Bay.

As discussed in Section 15, significant portions of the Chesapeake Bay and its tributaries are listed as impaired with nutrient enrichment cited as one of the primary causes. Virginia has committed to protecting and restoring the Bay and its tributaries. Only concentration limits are now found in the individual VPDES permit when the facility installs nutrient removal technology. The basis for the concentration limits is 9VAC25-40 - *Regulation for Nutrient Enriched Waters and Dischargers within the Chesapeake Bay Watershed* which requires new discharges >0.001 MGD or expanding discharges to treat for TN and TP to either BNR levels (TN = 8 mg/L; TP = 1.0 mg/L) or SOA levels (TN = 3.0 mg/L and TP = 0.3 mg/L).

This facility has also obtained coverage under 9VAC25-820 *General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia*. This regulation specifies and controls the nitrogen and phosphorus loadings from facilities and specifies facilities that must register under the general permit. Nutrient loadings for those facilities registered under the general permit as well as compliance schedules and other permit requirements, shall be authorized, monitored, limited, and otherwise regulated under the general permit and not this individual permit. This facility has coverage under this General Permit; the permit number is VAN030119. Total Nitrogen (TN) Annual Loads and Total Phosphorus (TP) Annual Loads from this facility are found in 9VAC25-720 – *Water Quality Management Plan Regulation*, which sets forth TN and TP maximum wasteload allocations for facilities designated as significant discharges, (i.e., those with design flows of ≥0.5 MGD above the fall line and ≥0.1 MGD below the fall line).

Monitoring for Nitrates + Nitrites, TKN, TN, and TP are included in this permit. The monitoring is needed to protect the Water Quality Standards of the Chesapeake Bay. Monitoring frequencies are set at the frequencies set forth in 9VAC25-820. Annual average effluent limitations, as well as monthly and year to date

calculations, for TN and TP are included in this individual permit. The annual averages are based on the offset plan submitted as part of the Registration Statement for 9VAC25-820, 9VAC25-40, and GM07-2008.

f) Effluent Limitations and Monitoring Summary.

The effluent limitations are presented in the following table. Limits were established for pH, CBOD<sub>5</sub>, TSS, TKN, D.O., *E. coli*, TRC, TN, TP, and total recoverable copper.

The TSS limit is based on best professional judgment.

The mass loading (kg/d) for monthly and weekly averages were calculated by multiplying the concentration values (mg/L) with the flow values (in MGD) and a conversion factor of 3.785.

$$ML \text{ kg/d} = CV \text{ mg/L} \times 3.785$$

The mass loading (lb/d) for monthly and weekly averages were calculated by multiplying the concentration values (mg/L) with the flow values (in MGD) and a conversion factor of 8.345.

$$ML \text{ lb/d} = CV \text{ mg/L} \times 8.345$$

ML = Mass Loading; CV = Concentration Value

Sample Type and Frequency are in accordance with the recommendations in the VPDES Permit Manual. The VPDES Permit Regulation at 9VAC25-31-30 and 40 CFR Part 133 require that the facility achieve at least 85% removal for CBOD<sub>5</sub> and TSS (or 65% for equivalent to secondary). The limits in this permit are water-quality-based effluent limits that result in greater than 85% removal.

**18. Antibacksliding:**

All limits in this permit are at least as stringent as those previously established. Backsliding does not apply to this reissuance.

**19. Effluent Limitations/Monitoring Requirements:**

Design flow is 0.1 MGD.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Weekly Average	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NA	NA	NL	Continuous	TIRE
pH	2	NA	NA	6.0 S.U.	9.0 S.U.	1/D	Grab
CBOD <sub>5</sub>	1,2	10 mg/L 3.8 kg/day	15 mg/L 5.7 kg/day	NA	NA	1/WK	4H-C
Total Suspended Solids (TSS)	1	10 mg/L 3.8 kg/day	15 mg/L 5.7 kg/day	NA	NA	1/WK	4H-C
Dissolved Oxygen (DO)	2	NA	NA	7.0 mg/L	NA	1/D	Grab
Total Kjeldahl Nitrogen (TKN)	2,5	3.0 mg/L 2.5 lb/day	4.5 mg/L 3.8 lb/day	NA	NA	1/WK	4H-C
<i>E. coli</i> (Geometric Mean) <sup>a</sup>	2,3	126 n/100mls	NA	NA	NA	1/WK	Grab
Total Residual Chlorine (after contact tank)	4	NA	NA	1.0 mg/L	NA	3/D at 4-hr Intervals	Grab
Total Residual Chlorine (after dechlorination)	4	0.008 mg/L	0.010 mg/L	NA	NA	3/D at 4-hr Intervals	Grab
Nitrate+Nitrite, as N	2,5	NL mg/L	NA	NA	NA	1/M	4H-C
Total Nitrogen <sup>b, c</sup>	2,5	NL mg/L	NA	NA	NA	1/M	Calculate
Total Nitrogen – Year to Date <sup>b</sup>	2,5	NL mg/L	NA	NA	NA	1/M	Calculate
Total Nitrogen - Calendar Year <sup>b</sup>	2,5	8.0 mg/L	NA	NA	NA	1/YR	Calculate
Total Phosphorus	2,5	NL mg/L	NA	NA	NA	1/M	4H-C
Total Phosphorus – Year to Date <sup>b</sup>	2,5	NL mg/L	NA	NA	NA	1/M	Calculate
Total Phosphorus - Calendar Year <sup>b</sup>	2,5	1.0 mg/L	NA	NA	NA	1/YR	Calculate
Total Recoverable Copper	2	11 µg/L	11 µg/L	NA	NA	1/M	Grab
Total Hardness	1	NL mg/L	NA	NA	NA	1/M	Grab

The basis for the limitations codes are:

MGD = Million gallons per day.

1/D = Once every day.

NA = Not applicable.

1/WK = Once per week.

1. Best Professional Judgment

NL = No limit; monitor and report.

3/D = Three per day.

2. Water Quality Standards

TIRE = Totalizing, indicating and recording equipment.

1/M = Once every month.

3. Pamunkey River Basin Bacteria TMDL

S.U. = Standard units.

1/YR = Once every year.

4. DEQ Disinfection Guidance

5. 9VAC25-40 (Nutrient Regulation)

4H-C = A flow proportional composite sample collected manually or automatically, and discretely or continuously, for the entire discharge of the monitored 4-hr period. Where discrete sampling is employed, the permittee shall collect a minimum of four (4) aliquots for compositing. Discrete sampling may be flow proportioned either by varying the time interval between each aliquot or the volume of each aliquot. Time composite samples consisting of a minimum of four (4) grab samples obtained at hourly or smaller intervals may be collected where the permittee demonstrates that the discharge flow rate (gallons per minute) does not vary by 10% or more during the monitored discharge.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

- Samples shall be collected between 10:00 a.m. and 4:00 p.m.
- See Section 20.a. for more information on the Nutrient Calculations.
- Total Nitrogen = Sum of TKN plus Nitrate+Nitrite as N.

## 20. Other Permit Requirements:

- a) Part I.B. of the permit contains additional chlorine monitoring requirements, quantification levels and compliance reporting instructions.

These additional chlorine requirements are necessary per the Sewage Collection and Treatment Regulations at 9VAC25-790 and by the Water Quality Standards at 9VAC25-260-170. A minimum chlorine residual must be maintained at the exit of the chlorine contact tank to assure adequate disinfection. No more than 10% of the monthly test results for TRC at the exit of the chlorine contact tank shall be  $<1.0$  mg/L with any TRC  $<0.6$  mg/L considered a system failure. Monitoring at numerous STPs has concluded that a TRC residual of 1.0 mg/L is an adequate indicator of compliance with the *E. coli* criteria. *E. coli* limits are defined in this section as well as monitoring requirements to become effective should an alternate means of disinfection be used.

9VAC25-31-190.L.4.c. requires an arithmetic mean for measurement averaging and 9VAC25-31-220.D requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an instream excursion of water quality criteria. Specific analytical methodologies for toxics are listed in this permit section as well as quantification levels (QLs) necessary to demonstrate compliance with applicable permit limitations or for use in future evaluations to determine if the pollutant has reasonable potential to cause or contribute to a violation. Required averaging methodologies are also specified.

The calculations for the Nitrogen and Phosphorus parameters shall be in accordance with the calculations set forth in 9VAC25-820 *General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia*. §62.1-44.19:13 of the Code of Virginia defines how annual nutrient loads are to be calculated; this is carried forward in 9VAC25-820-70. As annual concentrations (as opposed to loads) are limited in the individual permit, these reporting calculations are intended to reconcile the reporting calculations between the permit programs since the permittee is collecting a single set of samples for the purpose of ascertaining compliance with two permits.

## 21. Other Special Conditions:

- a) 95% Capacity Reopener. The VPDES Permit Regulation at 9VAC25-31-200.B.4 requires all POTWs and PVOTWs develop and submit a plan of action to DEQ when the monthly average influent flow to their sewage treatment plant reaches 95% or more of the design capacity authorized in the permit for each month of any three consecutive month period. The facility is a PVOTW.
- b) Indirect Dischargers. Required by VPDES Permit Regulation, 9VAC25-31-200 B.1 and B.2 for POTWs and PVOTWs that receive waste from someone other than the owner of the treatment works.
- c) O&M Manual Requirement. Required by the Code of Virginia at §62.1-44.19; the Sewage Collection and Treatment Regulations at 9VAC25-790; and the VPDES Permit Regulation at 9VAC25-31-190.E. The permittee shall submit a revised Operations and Maintenance (O&M) Manual to DEQ within 90 days of the date of this permit reissuance. The permittee shall operate the treatment works in accordance with the O&M Manual and shall make the O&M Manual available to DEQ personnel for review upon request. Any changes in the practices and procedures followed by the permittee shall be documented in the O&M Manual within 90 days of the effective date of the changes. Non-compliance with the O&M Manual shall be deemed a violation of the permit.
- d) CTC, CTO Requirement. The Code of Virginia at § 62.1-44.19 and the Sewage Collection and Treatment Regulations at 9VAC25-790 require that all wastewater treatment works obtain a Certificate to Construct prior to commencing construction and a Certificate to Operate prior to commencing operation of the treatment works.

- e) Licensed Operator Requirement. The Code of Virginia at §54.1-2300 et seq., the VPDES Permit Regulation at 9VAC25-31-200 C, and the Rules and Regulations for Waterworks and Wastewater Works Operators at 18VAC160-20-10 et seq. requires licensure of operators. This facility requires a Class III operator.
- f) Reliability Class. The Sewage Collection and Treatment Regulations at 9VAC25-790 require sewage treatment works to achieve a certain level of reliability in order to protect water quality and public health consequences in the event of component or system failure. Reliability means a measure of the ability of the treatment works to perform its designated function without failure or interruption of service. This facility is required to meet a Reliability Class of II.
- g) Sludge Reopener. The VPDES Permit Regulation at 9VAC25-31-220.C. requires all permits issued to treatment works treating domestic sewage (including sludge-only facilities) include a reopener clause allowing incorporation of any applicable standard for sewage sludge use or disposal promulgated under Section 405(d) of the CWA. The facility is a sewage treatment works.
- h) Sludge Use and Disposal. The VPDES Permit Regulation at 9VAC25-31-100.P; 220.B.2, and 420 through 720 and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information regarding their sludge use and disposal practices and to meet specified standards for sludge use and disposal. The facility is a treatment works treating domestic sewage.
- i) E3/E4. 9VAC25-40-70.B authorizes DEQ to approve an alternate compliance method to the technology-based effluent concentration limitations as required by Subsection A of 9VAC25-40-70.B. Such alternate compliance method shall be incorporated into the permit of an Exemplary Environmental Enterprise (E3) facility or an Extraordinary Environmental Enterprise (E4) facility to allow the suspension of applicable technology-based effluent concentration limitations during the period the E3 or E4 facility has a fully implemented environmental management system that includes operation of installed nutrient removal technologies at the treatment efficiency levels for which they were designed.
- j) Nutrient Reopener. 9VAC25-40-70 A authorizes DEQ to include technology-based annual concentration limits in the permits of facilities that have installed nutrient control equipment, whether by new construction, expansion or upgrade. 9VAC25-31-390 A authorizes DEQ to modify VPDES permits to promulgate amended water quality standards.
- k) TMDL Reopener: This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL that may be developed and approved for the receiving stream.

## 22. Permit Section Part II

Part II of the permit contains standard conditions that appear in all VPDES Permits. In general, these standard conditions address the responsibilities of the permittee, reporting requirements, testing procedures and records retention.

## 23. Changes to the Permit from the Previously Issued Permit:

- a) Monthly total hardness monitoring has been added.
- b) The total recoverable copper limits have been changed from 14 µg/L to 11 µg/L.
- c) The sample type for CBOD<sub>5</sub>, TSS, TKN, NO<sub>3</sub>-NO<sub>2</sub> as Nitrogen, and TP has been changed from 8H-C to 4H-C in accordance with DEQ guidance.
- d) The sample frequency for CBOD<sub>5</sub>, TSS, and TKN has been changed from twice per month to once per week.
- e) The monitoring frequency for Total Residual Chlorine after disinfection has been changed from daily to three times per day at four-hour intervals.

**24. Variances/Alternate Limits or Conditions: None**

**25. Public Notice Information:**

First Public Notice Date: 06/06/2013

Second Public Notice Date: 06/13/2013

Public Notice Information is required by 9VAC25-31-280 B. All pertinent information is on file and may be inspected, and copied by contacting the: DEQ Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193, Telephone No. (703) 583-3837, [anna.westernik@deq.virginia.gov](mailto:anna.westernik@deq.virginia.gov). See **Attachment 8** for a copy of the public notice document.

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer and of all persons represented by the commenter/requester, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit. Requests for public hearings shall state 1) the reason why a hearing is requested; 2) a brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit; and 3) specific references, where possible, to terms and conditions of the permit with suggested revisions. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given. The public may request an electronic copy of the draft permit and fact sheet or review the draft permit and application at the DEQ Northern Regional Office by appointment.

**26. Additional Comments:**

Previous Board Action: None

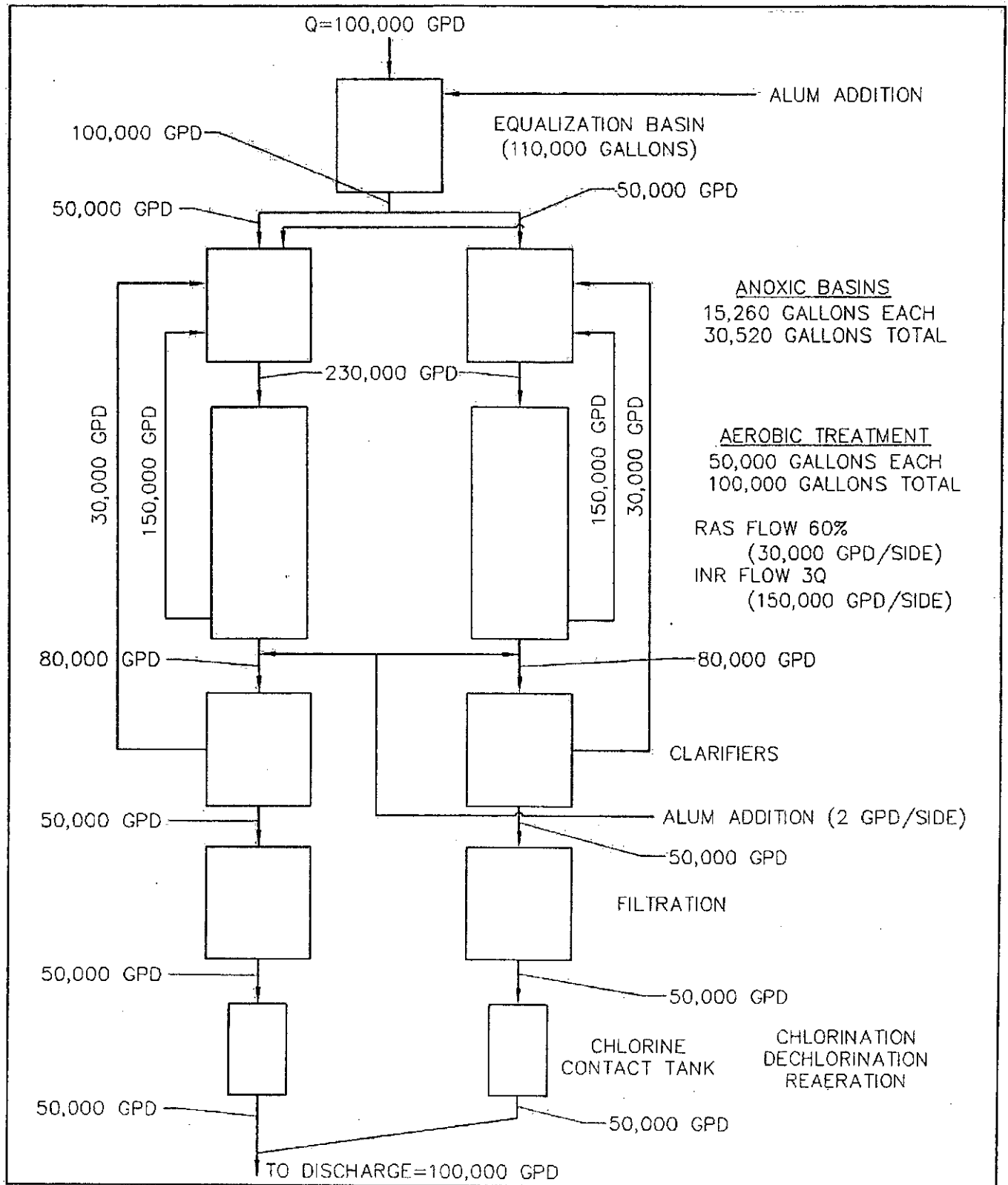
Staff Comments: None

Public Comment: On June 28, 2013, a comment was received from Mr. Wood Hudson, a senior planner with the Thomas Jefferson Planning District, through Dean Rodgers, General Manager for the Louisa County Water Authority, regarding transfer of sludge from the Shenandoah Crossing STP to the Louisa Regional WWTP. Mr. Hudson requested that the permittee, Shenandoah Crossing STP, notify the Louisa Regional WWTP prior to transferring sludge to ensure adequate room was present in the digesters. Mr. Tim Bernhardt of the Shenandoah Crossing STP stated that the hauler, Roto-Rooter, will haul the waste to another sewage treatment plant if the Louisa Regional WWTP did not have adequate capacity to accept the sludge. The sludge management plan was amended to reflect such.

EPA Checklist: The checklist can be found in **Attachment 9**.

### Attachments

Attachment 1	Facility Schematic Diagram and Aerial View of the Sewage Treatment Plant
Attachment 2	Boswell's Tavern Topographic map – 172C
Attachment 3	Site Inspection Summary Dated April 4, 2013
Attachment 4	Planning Statement Dated January 11, 2013
Attachment 5	Freshwater Water Quality Criteria and Wasteload Allocations
Attachment 6	Total Recoverable Copper Effluent Data (June 2008 – October 2012)
Attachment 7	Limitations Calculations
Attachment 8	Public Notice
Attachment 9	EPA Checklist



**Dewberry®**

DATE  
DEC. 2012

PROJ. NO.  
VA0076678

TITLE  
TREATMENT SCHEMATIC

PROJECT  
SHENANDOAH CROSSING  
NPDES PERMIT

SHEET NO.

2





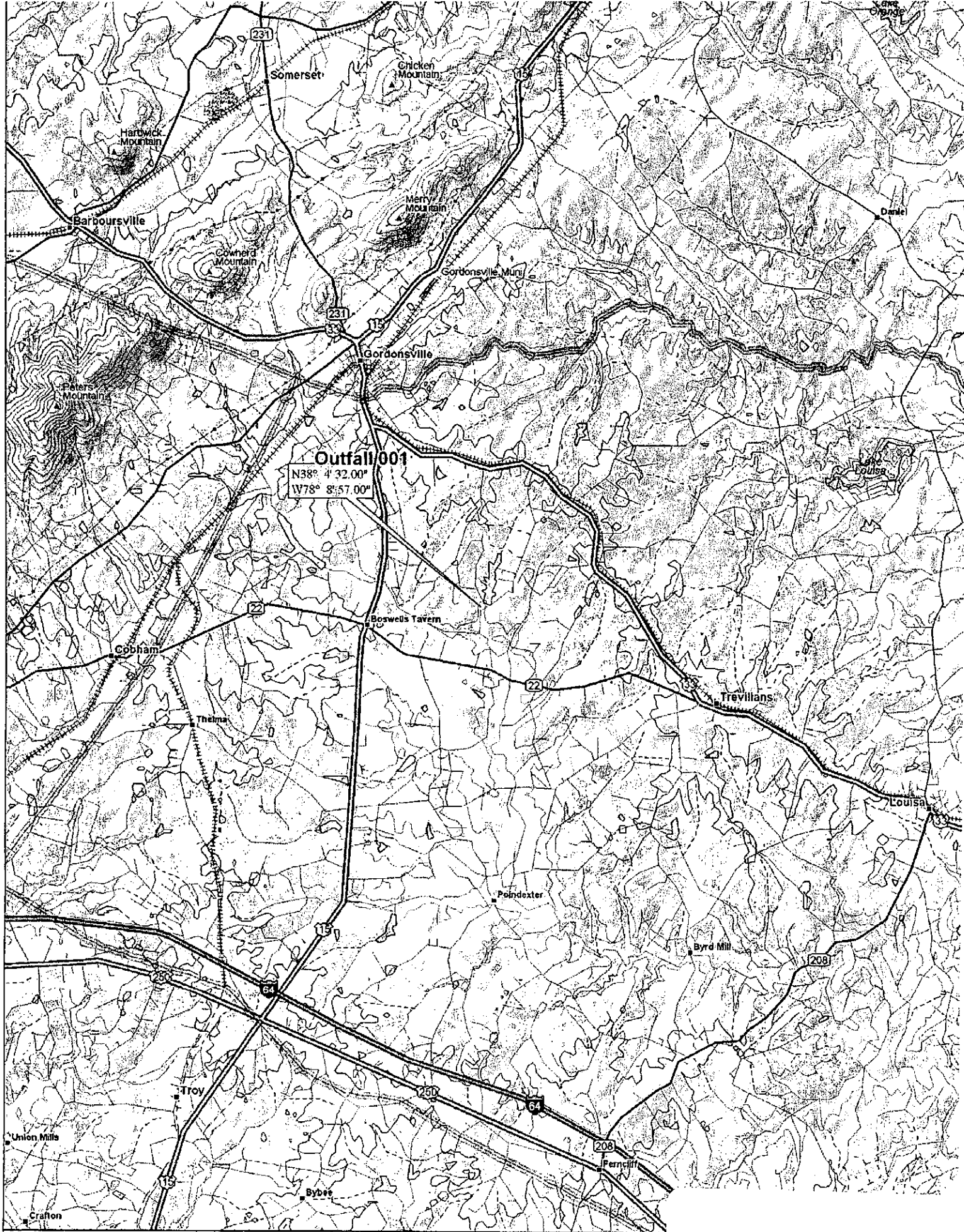
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38.075556, -78.149167

Image © 2013 Commonwealth of Virginia  
© 2013 Google

Google earth

Imagery Date: 12/31/2008 38°04'34.93" N 78°08'57.52" W elev 391 ft eye alt 1773 ft





## MEMORANDUM

### Northern Regional Office

**TO:** File

**FROM:** Anna Westernik, Water Permit Writer

**DATE:** April 4, 2013

**SUBJECT:** April 3, 2013 Site Inspection of the Shenandoah Crossing STP in Louisa County, Virginia (VA0076678)

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On April 3, 2013, DEQ visited the sewage treatment plant (STP) at the Shenandoah Crossing resort in Louisa County, Virginia for the purpose of reissuing the municipal permit. Present during the inspection were Tim Bernhardt and Kenny Walker, representing Leisure Capital Corporation, and myself.

The Shenandoah Crossing Resort is a community that consists of condominiums, a lodge, a manor house, time-share cabins, a recreational vehicle area, a campground, and single family homes that contribute to the 0.1 MGD discharge. Sewage created at the Shenandoah Crossing Resort is treated by an extended aeration sewage treatment plant with dual treatment trains. Influent flow travels through a screen to remove solids, an equalization tank, denitrification and nitrification treatment, chlorination, and dechlorination. After dechlorination, the effluent is metered and is discharged to a dry ditch before entry below the spillway of Izac Lake and subsequently, Lickinghole Creek. Liquid sludge is transported from the aerated digester to the Louisa Regional STP for further treatment and disposal.

The primary treatment unit consists of influent flow through a screen prior to entering an equalization tank. At the time of this visit, the screen was clogged and solids were entering the equalization basin. To reduce solids entering the sewage treatment plant, upgrading the primary treatment unit is recommended. Due to the intermittent nature of the population, an equalization tank is needed to distribute the flow. Alum is added to the equalization tank to aid with nitrification. An aerated mixer is present in the tank.

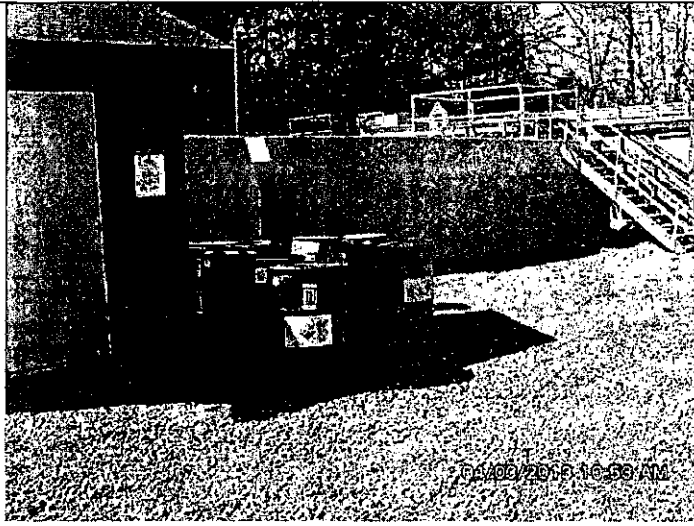
Flow from the equalization basin enters a dual secondary treatment train operating in parallel that consists of denitrification, nitrification, denitrification, and aeration. A fine mist is sprayed in the aeration tanks to assist in controlling floaties. Alum can be added at the end of the aeration tank to assist in phosphorus removal. However, this is currently not being done.

The effluent from secondary treatment enters two clarifiers and subsequently, two anthracite coal and sand gravity filters.

Disinfection and dechlorination is accomplished through twin tablet chlorination and dechlorination units. The flow is then metered before traveling down a slope for additional aeration prior to entering Lickinghole Creek below the spillway of Izac Lake.

Aquatic life was not observed in Lickinghole Creek on the date of the site visit. However, the visit was conducted in the early spring when freezing temperatures are still present at night.

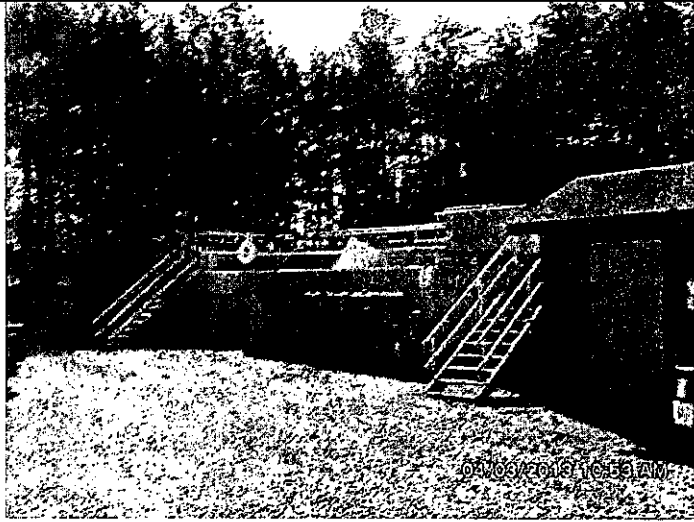
The chemical storage procedures need to be addressed. Presently, chemicals are stored outside without dual containment. Chemicals must be stored on dual containment units or in a building.



**1) Chemical Storage**



**2) Alum Storage/Alum Feed to Equalization Basin**



**3) Secondary Treatment Overview**



**4) Alum Feed to Equalization Basin**



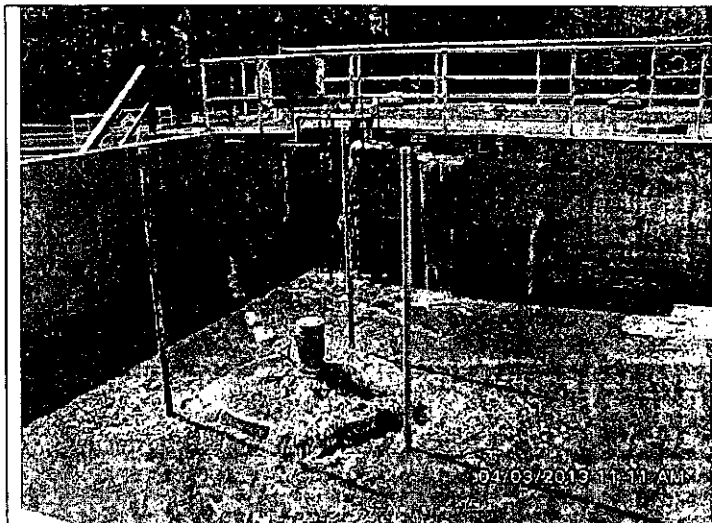
**5) Chemical Storage Shed. Soda Ash, Chlorine Tablets, Bisulfite Tablets**

Facility name: Shenandoah Crossing STP  
Site Inspection Date: April 3, 2013

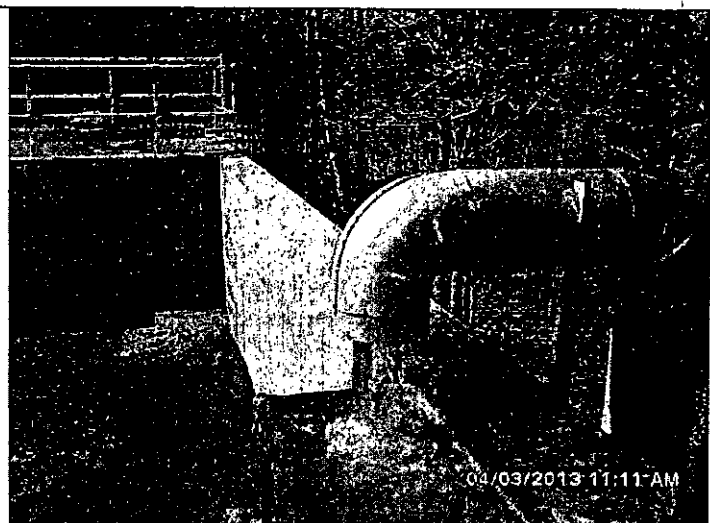


**6) Chemical Storage**

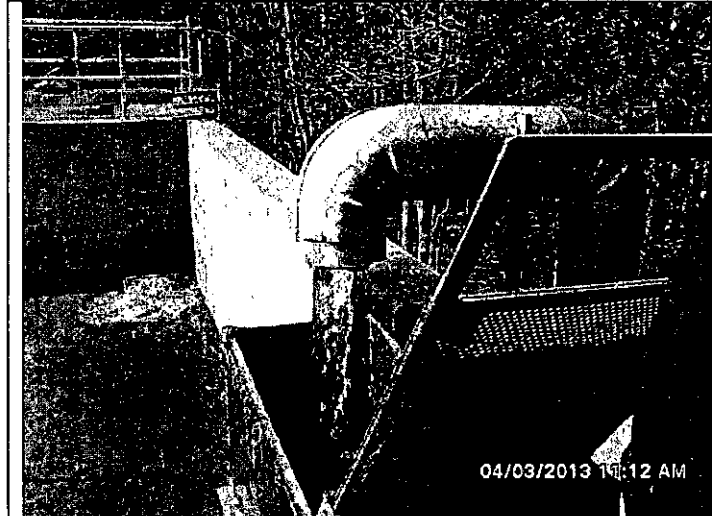
VPDES Permit No. VA0076678  
Photos & Layout by: Anna Westernnik



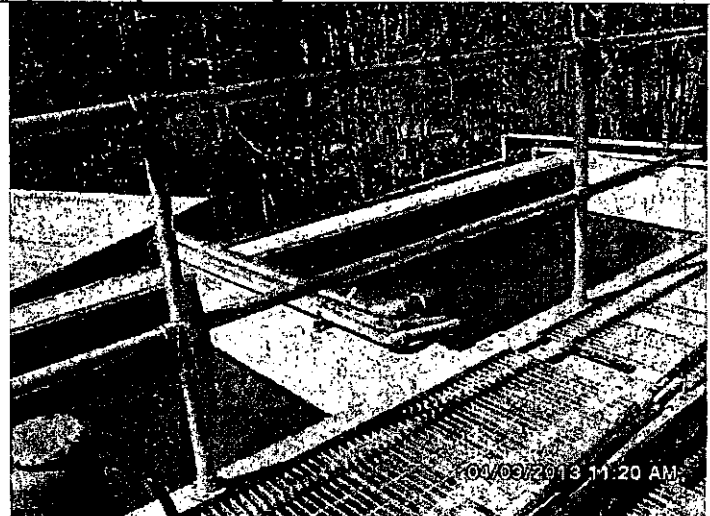
**7) Primary Screening Prior to the Equalization Basin**



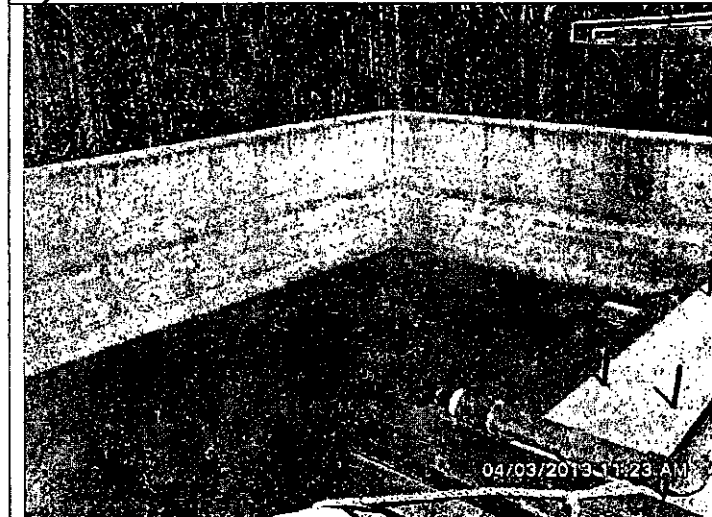
**8) Primary Screening**



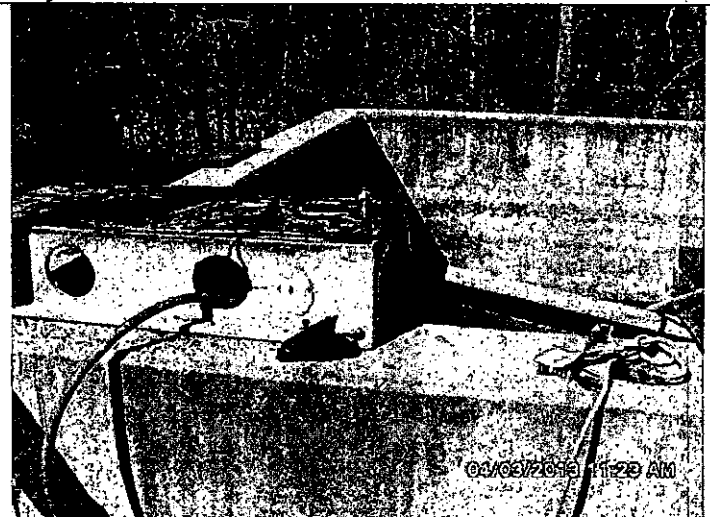
**9) Influent Flow Without Screen**



**10) Denitrification Basins**



**11) Sludge Digester**

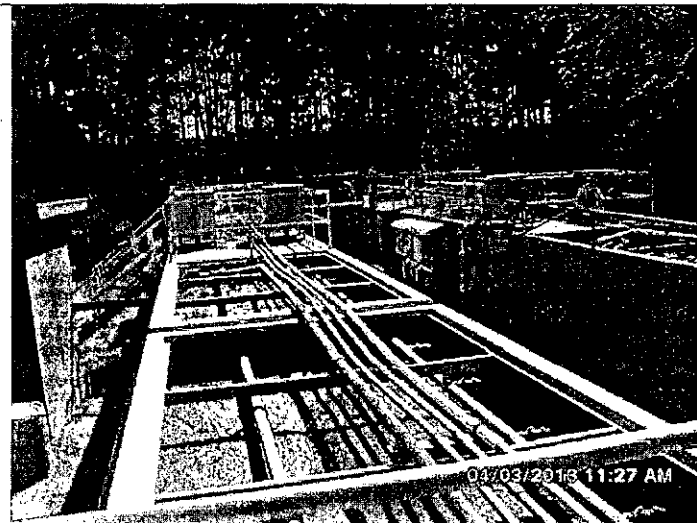


**12) Sludge Digester**

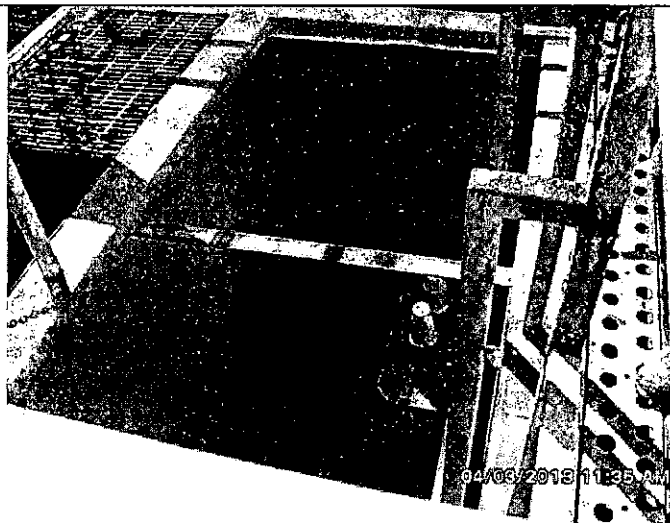
Facility name: Shenandoah Crossing STP  
Site Inspection Date: April 3, 2013

VPDES Permit No. VA0076678  
Photos & Layout by: Anna Westernik





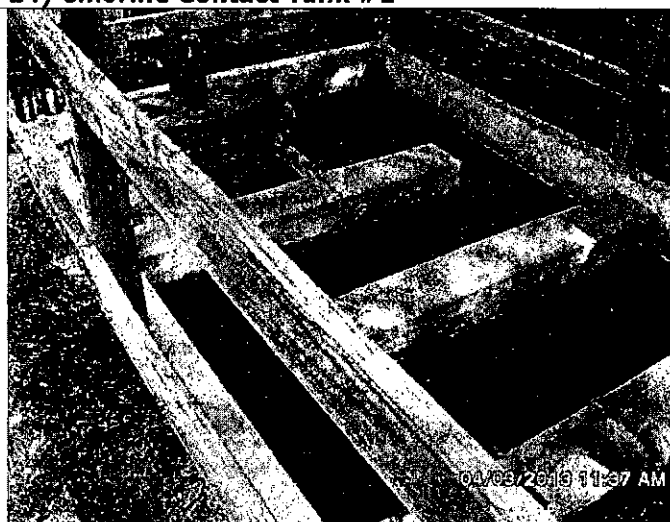
**13) Aeration Basins**



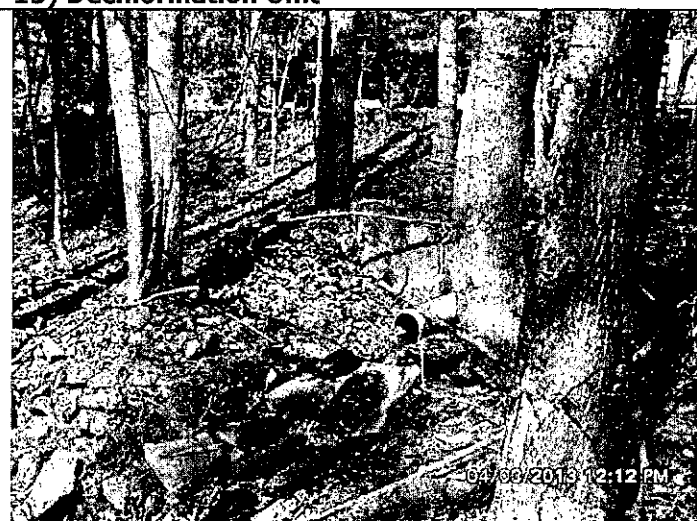
**14) Chlorine Contact Tank #1**



**15) Dechlorination Unit**



**15) Chlorine Contact Tank #2**



**16) Outfall 001**



**17) Discharge from Izac Lake Spillway**

Facility name: Shenandoah Crossing STP  
Site Inspection Date: April 3, 2013

VPDES Permit No. VA0076678  
Photos & Layout by: Anna Westernik



**18) Area Downstream of Outfall 001 Discharge**



**19) Area Downstream of Outfall 001 Discharge**



**20) Izac Lake Spillway**



**21) Area Downstream of Izac Lake Discharge**



**22) Area Downstream of Izac Lake Discharge**

Facility name: Shenandoah Crossing STP  
Site Inspection Date: April 3, 2013

VPDES Permit No. VA0076678  
Photos & Layout by: Anna Westernik

To: Anna Westernik  
From: Katie Conaway

Date: 01/11/2013  
Subject: Planning Statement for the Shenandoah Crossing WWTP  
Permit Number: VA0076678

**Information for Outfall 001:**

Discharge Type: Municipal  
Discharge Flow: 0.1 MGD  
Receiving Stream: Below impoundment on Lickinghole Creek  
Latitude / Longitude: 38° 04' 32" -78° 08' 57"  
Rivermile: 0.54  
Streamcode: 8-LKH  
Waterbody: VAN-F01R  
Water Quality Standards: Class III, Section 3  
Drainage Area: 2.73 mi<sup>2</sup>

1. Please provide water quality monitoring information for the receiving stream segment. If there is not monitoring information for the receiving stream segment, please provide information on the nearest downstream monitoring station, including how far downstream the monitoring station is from the outfall.

There is no monitoring data for Lickinghole Creek. Lickinghole Creek flows into the South Anna River. The nearest downstream DEQ monitoring station is 8-SAR089.35, which is located on the South Anna River at the Route 613 bridge crossing. Station 8-SAR089.35 is located approximately 6.22 rivermiles downstream from the Outfall of VA0076678. The following is a monitoring summary for this station as taken from the Draft 2012 Integrated Assessment\*:

*Class III, Section 3.*

*DEQ ambient monitoring station 8-SAR089.35, at Route 613. Citizen Monitoring Station 8SAR-F02-HGSI.*

*E. coli monitoring finds a bacterial impairment, resulting in an impaired classification for the recreation use. This impairment is nested within the downstream completed bacteria TMDL for the South Anna River. The aquatic life use is considered fully supporting. The fish consumption use was not assessed.*

*The wildlife use information from the 2010 assessment is as follows:*

*The wildlife use is considered fully supporting.*

*\* Virginia's Draft 2012 Integrated Report (IR) has been through the public comment period and reviewed by EPA. The 2012 IR is currently awaiting final approval.*



2. Does this facility discharge to a stream segment on the 303(d) list?

No.

3. Are there any downstream 303(d) listed impairments that are relevant to this discharge? If yes, please fill out Table B.

**Table B. Information on Downstream 303(d) Impairments and TMDLs**

Waterbody Name	Impaired Use	Cause	Distance From Outfall	TMDL completed	WLA	Basis for WLA	TMDL Schedule
<b>Impairment Information in the Draft 2012 Integrated Report*</b>							
South Anna River	Recreation	<i>E. coli</i>	0.54 miles	Yes: Pamunkey River Basin Bacteria TMDL	1.74E+11 cfu/year	126 cfu/100ml --- 0.1 MGD	TMDL Completed in 2006

\* Virginia's Draft 2012 Integrated Report (IR) has been through the public comment period and reviewed by EPA. The 2012 IR is currently awaiting final approval.

4. Is there monitoring or other conditions that Planning/Assessment needs in the permit?

There is a completed downstream TMDL for the aquatic life use impairment for the Chesapeake Bay. However, the Bay TMDL and the WLAs contained within the TMDL are not addressed in this planning statement.

5. Fact Sheet Requirements – Please provide information regarding any drinking water intakes located within a 5 mile radius of the discharge point.

There are no public water supply intakes within a 5 mile radius of this facility.

# FRESHWATER WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

## Attachment 5

Facility Name: Shenandoah Crossing STP

Permit No.: VA0076678

Receiving Stream: Lickinghole Creek

Version: OWP Guidance Memo 00-2011 (8/24/00)

### Stream Information

Mean Hardness (as CaCO<sub>3</sub>) =  
 90% Temperature (Annual) =  
 90% Temperature (Wet season) =  
 90% Maximum pH =  
 10% Maximum pH =  
 Tier Designation (1 or 2) =  
 Public Water Supply (PWS) Y/N? =  
 Trout Present Y/N? =  
 Early Life Stages Present Y/N? =

### Stream Flows

1Q10 (Annual) =  
 7Q10 (Annual) =  
 30Q10 (Annual) =  
 1Q10 (Wet season) =  
 30Q10 (Wet season) =  
 30Q5 =  
 Harmonic Mean =

### Mixing Information

Annual - 1Q10 Mix =  
 - 7Q10 Mix =  
 - 30Q10 Mix =  
 Wet Season - 1Q10 Mix =  
 - 30Q10 Mix =

### Effluent Information

Mean Hardness (as CaCO<sub>3</sub>) =  
 90% Temp (Annual) =  
 90% Temp (Wet season) =  
 90% Maximum pH =  
 10% Maximum pH =  
 Discharge Flow =

Parameter (μg/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acetophenone	0	-	-	na	9.9E+02	-	-	na	9.9E+02	-	-	-	-	-	-	-	-	-	-	-	-
Acrolein	0	-	-	na	9.3E+00	-	-	na	9.3E+00	-	-	-	-	-	-	-	-	-	-	-	-
Acrylonitrile <sup>c</sup>	0	-	-	na	2.5E+00	-	-	na	2.5E+00	-	-	-	-	-	-	-	-	-	-	-	-
Aldrin <sup>c</sup>	0	3.0E+00	-	na	5.0E-04	3.0E+00	-	na	5.0E-04	-	-	-	-	-	-	-	-	3.0E+00	-	na	5.0E-04
Ammonia-N (mg/l) (Yearly)	0	1.84E+00	3.36E-01	na	-	1.84E+00	3.36E-01	na	-	-	-	-	-	-	-	-	-	1.84E+00	3.36E-01	na	-
Ammonia-N (mg/l) (High Flow)	0	1.84E+00	6.61E-01	na	-	1.84E+00	6.61E-01	na	-	-	-	-	-	-	-	-	-	1.84E+00	6.61E-01	na	-
Anthracene	0	-	-	na	4.0E+04	-	-	na	4.0E+04	-	-	-	-	-	-	-	-	-	-	na	4.0E+04
Antimony	0	-	-	na	6.4E+02	-	-	na	6.4E+02	-	-	-	-	-	-	-	-	-	-	na	6.4E+02
Arsenic	0	3.4E+02	1.5E+02	na	-	3.4E+02	1.5E+02	na	-	-	-	-	-	-	-	-	-	3.4E+02	1.5E+02	na	-
Barium	0	-	-	na	-	-	-	na	-	-	-	-	-	-	-	-	-	-	-	na	-
Benzene <sup>c</sup>	0	-	-	na	5.1E+02	-	-	na	5.1E+02	-	-	-	-	-	-	-	-	-	-	na	5.1E+02
Benzidine <sup>c</sup>	0	-	-	na	2.0E-03	-	-	na	2.0E-03	-	-	-	-	-	-	-	-	-	-	na	2.0E-03
Benzo (a) anthracene <sup>c</sup>	0	-	-	na	1.8E-01	-	-	na	1.8E-01	-	-	-	-	-	-	-	-	-	-	na	1.8E-01
Benzo (b) fluoranthene <sup>c</sup>	0	-	-	na	1.8E-01	-	-	na	1.8E-01	-	-	-	-	-	-	-	-	-	-	na	1.8E-01
Benzo (k) fluoranthene <sup>c</sup>	0	-	-	na	1.8E-01	-	-	na	1.8E-01	-	-	-	-	-	-	-	-	-	-	na	1.8E-01
Benzo (a) pyrene <sup>c</sup>	0	-	-	na	1.8E-01	-	-	na	1.8E-01	-	-	-	-	-	-	-	-	-	-	na	1.8E-01
Bis(2-Chloroethyl) Ether <sup>c</sup>	0	-	-	na	5.3E+00	-	-	na	5.3E+00	-	-	-	-	-	-	-	-	-	-	na	5.3E+00
Bis(2-Chloroisopropyl) Ether <sup>c</sup>	0	-	-	na	6.5E+04	-	-	na	6.5E+04	-	-	-	-	-	-	-	-	-	-	na	6.5E+04
Bis(2-Ethylhexyl) Phthalate <sup>c</sup>	0	-	-	na	2.2E+01	-	-	na	2.2E+01	-	-	-	-	-	-	-	-	-	-	na	2.2E+01
Bromofom <sup>c</sup>	0	-	-	na	1.4E+03	-	-	na	1.4E+03	-	-	-	-	-	-	-	-	-	-	na	1.4E+03
Butylbenzylphthalate	0	-	-	na	1.9E+03	-	-	na	1.9E+03	-	-	-	-	-	-	-	-	-	-	na	1.9E+03
Cadmium	0	3.7E+00	1.1E+00	na	-	3.7E+00	1.1E+00	na	-	-	-	-	-	-	-	-	-	3.7E+00	1.1E+00	na	-
Carbon Tetrachloride <sup>c</sup>	0	-	-	na	1.6E+01	-	-	na	1.6E+01	-	-	-	-	-	-	-	-	-	-	na	1.6E+01
Chlordane <sup>c</sup>	0	2.4E+00	4.3E-03	na	8.1E-03	2.4E+00	4.3E-03	na	8.1E-03	-	-	-	-	-	-	-	-	2.4E+00	4.3E-03	na	8.1E-03
Chlordane <sup>c</sup>	0	8.6E+05	2.3E+05	na	-	8.6E+05	2.3E+05	na	-	-	-	-	-	-	-	-	-	8.6E+05	2.3E+05	na	-
TRC	0	1.9E+01	1.1E+01	na	-	1.9E+01	1.1E+01	na	-	-	-	-	-	-	-	-	-	1.9E+01	1.1E+01	na	-
Chlorobenzene	0	-	-	na	1.6E+03	-	-	na	1.6E+03	-	-	-	-	-	-	-	-	-	-	na	1.6E+03

Parameter (µg/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorobenzene <sup>c</sup>	0	---	---	na	1.3E+02	---	---	na	1.3E+02	---	---	---	---	---	---	---	---	---	---	---	---
Chloroform	0	---	---	na	1.1E+04	---	---	na	1.1E+04	---	---	---	---	---	---	---	---	---	---	---	---
2-Chloronaphthalene	0	---	---	na	1.6E+03	---	---	na	1.6E+03	---	---	---	---	---	---	---	---	---	---	---	---
2-Chlorophenol	0	---	---	na	1.5E+02	---	---	na	1.5E+02	---	---	---	---	---	---	---	---	---	---	---	---
Chlorpyrifos	0	8.3E-02	4.1E-02	na	---	8.3E-02	4.1E-02	na	---	---	---	---	---	---	---	---	---	---	---	---	---
Chromium III	0	5.4E+02	7.0E+01	na	---	5.4E+02	7.0E+01	na	---	---	---	---	---	---	---	---	---	---	---	---	---
Chromium VI	0	1.6E+01	1.1E+01	na	---	1.6E+01	1.1E+01	na	---	---	---	---	---	---	---	---	---	---	---	---	---
Chromium, Total	0	---	---	1.0E+02	---	---	---	na	---	---	---	---	---	---	---	---	---	---	---	---	---
Chrysene <sup>c</sup>	0	---	---	na	1.8E-02	---	---	na	1.8E-02	---	---	---	---	---	---	---	---	---	---	---	---
Copper	0	1.3E+01	8.5E+00	na	---	1.3E+01	8.5E+00	na	---	---	---	---	---	---	---	---	---	---	---	---	---
Cyanide, Free	0	2.2E+01	5.2E+00	na	1.6E+04	2.2E+01	5.2E+00	na	1.6E+04	---	---	---	---	---	---	---	---	---	---	---	---
DDD <sup>c</sup>	0	---	---	na	3.1E-03	---	---	na	3.1E-03	---	---	---	---	---	---	---	---	---	---	---	---
DDE <sup>c</sup>	0	---	---	na	2.2E-03	---	---	na	2.2E-03	---	---	---	---	---	---	---	---	---	---	---	---
DDT <sup>c</sup>	0	1.1E+00	1.0E-03	na	2.2E-03	1.1E+00	1.0E-03	na	2.2E-03	---	---	---	---	---	---	---	---	---	---	---	---
Demeton	0	---	1.0E-01	na	---	---	1.0E-01	na	---	---	---	---	---	---	---	---	---	---	---	---	---
Diazinon	0	1.7E-01	1.7E-01	na	---	1.7E-01	1.7E-01	na	---	---	---	---	---	---	---	---	---	---	---	---	---
Dibenz(a,h)anthracene <sup>c</sup>	0	---	---	na	1.8E-01	---	---	na	1.8E-01	---	---	---	---	---	---	---	---	---	---	---	---
1,2-Dichlorobenzene	0	---	---	na	1.3E+03	---	---	na	1.3E+03	---	---	---	---	---	---	---	---	---	---	---	---
1,3-Dichlorobenzene	0	---	---	na	9.6E+02	---	---	na	9.6E+02	---	---	---	---	---	---	---	---	---	---	---	---
1,4-Dichlorobenzene	0	---	---	na	1.9E+02	---	---	na	1.9E+02	---	---	---	---	---	---	---	---	---	---	---	---
3,3-Dichlorobenzidine <sup>c</sup>	0	---	---	na	2.8E-01	---	---	na	2.8E-01	---	---	---	---	---	---	---	---	---	---	---	---
Dichlorobromomethane <sup>c</sup>	0	---	---	na	1.7E+02	---	---	na	1.7E+02	---	---	---	---	---	---	---	---	---	---	---	---
1,2-Dichloroethane <sup>c</sup>	0	---	---	na	3.7E+02	---	---	na	3.7E+02	---	---	---	---	---	---	---	---	---	---	---	---
1,1-Dichloroethylene	0	---	---	na	7.1E+03	---	---	na	7.1E+03	---	---	---	---	---	---	---	---	---	---	---	---
1,2-trans-dichloroethylene	0	---	---	na	1.0E+04	---	---	na	1.0E+04	---	---	---	---	---	---	---	---	---	---	---	---
2,4-Dichlorophenol	0	---	---	na	2.9E+02	---	---	na	2.9E+02	---	---	---	---	---	---	---	---	---	---	---	---
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	---	---	na	---	---	---	na	---	---	---	---	---	---	---	---	---	---	---	---	---
1,2-Dichloropropane <sup>c</sup>	0	---	---	na	1.5E+02	---	---	na	1.5E+02	---	---	---	---	---	---	---	---	---	---	---	---
1,3-Dichloropropane <sup>c</sup>	0	---	---	na	2.1E+02	---	---	na	2.1E+02	---	---	---	---	---	---	---	---	---	---	---	---
Dieldrin <sup>c</sup>	0	2.4E-01	5.6E-02	na	5.4E-04	2.4E-01	5.6E-02	na	5.4E-04	---	---	---	---	---	---	---	---	---	---	---	---
Diethyl Phthalate	0	---	---	na	4.4E+04	---	---	na	4.4E+04	---	---	---	---	---	---	---	---	---	---	---	---
2,4-Dimethylphenol	0	---	---	na	8.5E+02	---	---	na	8.5E+02	---	---	---	---	---	---	---	---	---	---	---	---
Dimethyl Phthalate	0	---	---	na	1.1E+06	---	---	na	1.1E+06	---	---	---	---	---	---	---	---	---	---	---	---
Di-n-Butyl Phthalate	0	---	---	na	4.5E+03	---	---	na	4.5E+03	---	---	---	---	---	---	---	---	---	---	---	---
2,4-Dinitrophenol	0	---	---	na	5.3E+03	---	---	na	5.3E+03	---	---	---	---	---	---	---	---	---	---	---	---
2-Methyl-4,6-Dinitrophenol	0	---	---	na	2.8E+02	---	---	na	2.8E+02	---	---	---	---	---	---	---	---	---	---	---	---
2,4-Dinitroethylene <sup>c</sup>	0	---	---	na	3.4E+01	---	---	na	3.4E+01	---	---	---	---	---	---	---	---	---	---	---	---
Dioxin 2,3,7,8-tetrachlorodibenzo-p-dioxin	0	---	---	na	5.1E-08	---	---	na	5.1E-08	---	---	---	---	---	---	---	---	---	---	---	---
1,2-Diphenylhydrazine <sup>c</sup>	0	---	---	na	2.0E+00	---	---	na	2.0E+00	---	---	---	---	---	---	---	---	---	---	---	---
Alpha-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	8.9E+01	---	---	---	---	---	---	---	---	---	---	---	---
Beta-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	8.9E+01	---	---	---	---	---	---	---	---	---	---	---	---
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	---	---	2.2E-01	5.6E-02	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Endosulfan Sulfate	0	---	---	na	8.9E+01	---	---	na	8.9E+01	---	---	---	---	---	---	---	---	---	---	---	---
Endrin	0	8.6E-02	3.6E-02	na	6.0E-02	8.6E-02	3.6E-02	na	6.0E-02	---	---	---	---	---	---	---	---	---	---	---	---
Endrin Aldehyde	0	---	---	na	3.0E-01	---	---	na	3.0E-01	---	---	---	---	---	---	---	---	---	---	---	---

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	na	2.1E+03	--	--	na	2.1E+03	--	--	--	--	--	--	--	--	--	--	na	2.1E+03
Fluoranthene	0	--	--	na	1.4E+02	--	--	na	1.4E+02	--	--	--	--	--	--	--	--	--	--	na	1.4E+02
Fluorene	0	--	--	na	5.3E+03	--	--	na	5.3E+03	--	--	--	--	--	--	--	--	--	--	na	5.3E+03
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Gultion	0	--	1.0E-02	na	--	--	1.0E-02	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Heptachlor <sup>c</sup>	0	5.2E-01	3.8E-03	na	7.9E-04	5.2E-01	3.8E-03	na	7.9E-04	--	--	--	--	--	--	--	--	--	--	na	7.9E-04
Heptachlor Epoxide <sup>c</sup>	0	5.2E-01	3.8E-03	na	3.9E-04	5.2E-01	3.8E-03	na	3.9E-04	--	--	--	--	--	--	--	--	--	--	na	3.9E-04
Hexachlorobenzene <sup>c</sup>	0	--	--	na	2.9E-03	--	--	na	2.9E-03	--	--	--	--	--	--	--	--	--	--	na	2.9E-03
Hexachlorobutadiene <sup>c</sup>	0	--	--	na	1.8E+02	--	--	na	1.8E+02	--	--	--	--	--	--	--	--	--	--	na	1.8E+02
Hexachlorocyclohexane	0	--	--	na	4.9E-02	--	--	na	4.9E-02	--	--	--	--	--	--	--	--	--	--	na	4.9E-02
Beta-BHC <sup>c</sup>	0	--	--	na	1.7E-01	--	--	na	1.7E-01	--	--	--	--	--	--	--	--	--	--	na	1.7E-01
Hexachlorocyclohexane Gamma-BHC <sup>c</sup> (Lindane)	0	9.5E-01	na	na	1.8E+00	9.5E-01	--	na	1.8E+00	--	--	--	--	--	--	--	--	--	--	na	1.8E+00
Hexachlorocyclopentadiene	0	--	--	na	1.1E+03	--	--	na	1.1E+03	--	--	--	--	--	--	--	--	--	--	na	1.1E+03
Hexachloroethane <sup>c</sup>	0	--	--	na	3.3E+01	--	--	na	3.3E+01	--	--	--	--	--	--	--	--	--	--	na	3.3E+01
Hydrogen Sulfide	0	--	2.0E+00	na	--	--	2.0E+00	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Indeno (1,2,3-cd) pyrene <sup>c</sup>	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Iron	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Isophorone <sup>c</sup>	0	--	--	na	9.6E+03	--	--	na	9.6E+03	--	--	--	--	--	--	--	--	--	--	na	9.6E+03
Kapone	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Lead	0	1.1E+02	1.2E+01	na	--	1.1E+02	1.2E+01	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Malathion	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Manganese	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Mercury	0	1.4E+00	7.7E-01	--	--	1.4E+00	7.7E-01	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl Bromide	0	--	--	na	1.5E+03	--	--	na	1.5E+03	--	--	--	--	--	--	--	--	--	--	na	1.5E+03
Methylene Chloride <sup>c</sup>	0	--	--	na	5.9E+03	--	--	na	5.9E+03	--	--	--	--	--	--	--	--	--	--	na	5.9E+03
Methoxychlor	0	--	3.0E-02	na	--	--	3.0E-02	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Mirex	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Nickel	0	1.7E+02	1.9E+01	na	4.6E+03	1.7E+02	1.9E+01	na	4.6E+03	--	--	--	--	--	--	--	--	--	--	na	4.6E+03
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Nitrobenzene	0	--	--	na	6.9E+02	--	--	na	6.9E+02	--	--	--	--	--	--	--	--	--	--	na	6.9E+02
N-Nitrosodimethylamine <sup>c</sup>	0	--	--	na	3.0E+01	--	--	na	3.0E+01	--	--	--	--	--	--	--	--	--	--	na	3.0E+01
N-Nitrosodiphenylamine <sup>c</sup>	0	--	--	na	6.0E+01	--	--	na	6.0E+01	--	--	--	--	--	--	--	--	--	--	na	6.0E+01
N-Nitrosodi-n-propylamine <sup>c</sup>	0	--	--	na	5.1E+00	--	--	na	5.1E+00	--	--	--	--	--	--	--	--	--	--	na	5.1E+00
Nonylphenol	0	2.8E+01	6.6E+00	--	--	2.8E+01	6.6E+00	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Parathion	0	6.5E-02	1.3E-02	na	--	6.5E-02	1.3E-02	na	--	--	--	--	--	--	--	--	--	--	--	na	--
PCB Total <sup>f</sup>	0	--	1.4E-02	na	6.4E-04	--	1.4E-02	na	6.4E-04	--	--	--	--	--	--	--	--	--	--	na	6.4E-04
Pentachlorophenol <sup>c</sup>	0	7.7E-03	5.9E-03	na	3.0E+01	7.7E-03	5.9E-03	na	3.0E+01	--	--	--	--	--	--	--	--	--	--	na	3.0E+01
Phenol	0	--	--	na	8.6E+05	--	--	na	8.6E+05	--	--	--	--	--	--	--	--	--	--	na	8.6E+05
Pyrene	0	--	--	na	4.0E+03	--	--	na	4.0E+03	--	--	--	--	--	--	--	--	--	--	na	4.0E+03
Radionuclides	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Gross Alpha Activity (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Beta and Proton Activity (mrem/yr)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Radium 226 + 228 (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Uranium (ug/l)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--



**Shenandoah Crossing WWTP**  
**VA0076678**  
**Total Recoverable Copper Monitoring Results**  
**June 2008 – October 2012**

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<b>Date DMR Due</b>	<b>Average Concentration</b>
10-Nov-12	5
10-Oct-12	11
10-Sep-12	5
10-Aug-12	5
10-Jul-12	6
10-Jun-12	5
10-May-12	5
10-Apr-12	5
10-Mar-12	5
10-Feb-12	6
10-Jan-12	8
10-Dec-11	5
10-Nov-11	8
10-Oct-11	6
10-Sep-11	5
10-Aug-11	5
10-Jul-11	5
10-Jun-11	5
10-May-11	5
10-Apr-11	5
10-Mar-11	13
10-Feb-11	5
10-Jan-11	10
10-Dec-10	5
10-Nov-10	5
10-Oct-10	8
10-Sep-10	6
10-Aug-10	14
10-Jul-10	5
10-Jun-10	5
10-May-10	5
10-Apr-10	11
10-Mar-10	8
10-Feb-10	5
10-Jan-10	5
10-Dec-09	5
10-Nov-09	8
10-Oct-09	5
10-Sep-09	10
10-Aug-09	6
10-Jul-09	6
10-Jun-09	8
10-May-09	7
10-Apr-09	8
10-Mar-09	5
10-Feb-09	7
10-Jan-09	8
10-Dec-08	10
10-Nov-08	5
10-Oct-08	10
10-Sep-08	10
10-Aug-08	8
10-Jul-08	9

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Facility = Shenandoah Crossing STP  
Chemical = Total Recoverable Copper  
Chronic averaging period = 4  
WLAa = 13  
WLAc = 8.5  
Q.L. = 5  
# samples/mo. = 1  
# samples/wk. = 1

Summary of Statistics:

# observations = 53  
Expected Value = 6.77486  
Variance = 4.51794  
C.V. = 0.313740  
97th percentile daily values = 11.5032  
97th percentile 4 day average = 8.97412  
97th percentile 30 day average = 7.50482  
# < Q.L. = 0  
Model used = lognormal

A limit is needed based on Chronic Toxicity  
Maximum Daily Limit = 10.8954716872045  
Average Weekly limit = 10.8954716872045  
Average Monthly Limit = 10.8954716872045

The data are:

5  
11  
5  
5  
6  
5  
5  
5  
5  
5  
6  
8  
5  
8  
6  
5  
5  
5  
5  
5  
5  
5

13  
5  
10  
5  
5  
8  
6  
14  
5  
5  
5  
11  
8  
5  
5  
5  
8  
5  
10  
6  
6  
8  
7  
8  
5  
7  
8  
10  
5  
10  
10  
8  
9



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Facility = Shenandoah Crossing

Chemical = TRC

Chronic averaging period = 4

WLAa = 0.019

WLAc = 0.011

Q.L. = 0.2

# samples/mo. = 28

# samples/wk. = 7

#### Summary of Statistics:

# observations = 1

Expected Value = 20

Variance = 144

C.V. = 0.6

97th percentile daily values = 48.6683

97th percentile 4 day average = 33.2758

97th percentile 30 day average = 24.1210

# < Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity

Maximum Daily Limit = 1.60883226245855E-02

Average Weekly limit = 9.8252545713861E-03

Average Monthly Limit = 8.02152773888032E-03

The data are:

## Public Notice – Environmental Permit

**PURPOSE OF NOTICE:** To seek public comment on a draft permit from the Department of Environmental Quality that will allow the release of treated wastewater into a water body in Louisa County, Virginia.

**PUBLIC COMMENT PERIOD:** TBD 2013 to TBD 2013

**PERMIT NAME:** Virginia Pollutant Discharge Elimination System Permit issued by DEQ under the authority of the State Water Control Board.

**APPLICANT NAME, ADDRESS AND PERMIT NUMBER:** Eric Piner, Director-Construction and Development, Leisure Capital Corporation, 4960 Conference Way North, Suite 100, Boca Raton, FL VA0076678

**NAME AND ADDRESS OF FACILITY:** Shenandoah Crossing Sewage Treatment Plant, 174 Horseshoe Circle, Gordonsville, VA 22942

**PROJECT DESCRIPTION:** Leisure Capital Corporation has applied for reissuance of a permit for the private Shenandoah Crossing Sewage Treatment Plant. The applicant proposes to release treated sewage wastewaters from residential areas a rate of 0.1 million gallons per day into a water body. Sludge from the treatment process will be disposed of by transport via a sludge hauler to the Louisa Regional Wastewater Treatment Plant. The facility proposes to release the treated sewage into Lickinghole Creek in Louisa County and in the York River watershed. A watershed is the land area drained by a river and its incoming streams. The permit will limit the following pollutants to amounts that protect water quality: pH, cBOD<sub>5</sub>, total suspended solids, dissolved oxygen, total kjeldahl nitrogen, E. coli, total residual chlorine, total nitrogen, total phosphorus, and total recoverable copper.

This facility is subject to the requirements of 9 VAC 25-820 and has registered for coverage under the General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Watershed in Virginia.

**HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING:** DEQ accepts comments and requests for public hearing by hand-delivery, e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. A public hearing may be held, including another comment period, if public response is significant, based on individual requests for a public hearing, and there are substantial, disputed issues relevant to the permit.

**CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION:** The public may review the draft permit and application at the DEQ-Northern Regional Office by appointment, or may request electronic copies of the draft permit and fact sheet.

Name: Anna Westernik

Address: DEQ-Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193

Phone: (703) 583-3837 E-mail: [anna.westernik@deq.virginia.gov](mailto:anna.westernik@deq.virginia.gov) Fax: (703) 583-3821

**State "Transmittal Checklist" to Assist in Targeting  
Municipal and Industrial Individual NPDES Draft Permits for Review**

**Part I. State Draft Permit Submission Checklist**

In accordance with the MOA established between the Commonwealth of Virginia and the United States Environmental Protection Agency, Region III, the Commonwealth submits the following draft National Pollutant Discharge Elimination System (NPDES) permit for Agency review and concurrence.

Facility Name:	Shenandoah Crossing STP
NPDES Permit Number:	VA0076678
Permit Writer Name:	Anna Westernnik
Date:	March 14, 2013

Major ☐ Minor ☒ Industrial ☐ Municipal ☒

**I.A. Draft Permit Package Submittal Includes:**

	Yes	No	N/A
1. Permit Application?	X		
2. Complete Draft Permit (for renewal or first time permit – entire permit, including boilerplate information)?	X		
3. Copy of Public Notice?	X		
4. Complete Fact Sheet?	X		
5. A Priority Pollutant Screening to determine parameters of concern?		X	
6. A Reasonable Potential analysis showing calculated WQBELs?	X		
7. Dissolved Oxygen calculations?		X	
8. Whole Effluent Toxicity Test summary and analysis?		X	
9. Permit Rating Sheet for new or modified industrial facilities?			X

**I.B. Permit/Facility Characteristics**

	Yes	No	N/A
1. Is this a new, or currently unpermitted facility?		X	
2. Are all permissible outfalls (including combined sewer overflow points, non-process water and storm water) from the facility properly identified and authorized in the permit?	X		
3. Does the fact sheet or permit contain a description of the wastewater treatment process?	X		
4. Does the review of PCS/DMR data for at least the last 3 years indicate significant non-compliance with the existing permit?		X	
5. Has there been any change in streamflow characteristics since the last permit was developed?		X	
6. Does the permit allow the discharge of new or increased loadings of any pollutants?		X	
7. Does the fact sheet or permit provide a description of the receiving water body(s) to which the facility discharges, including information on low/critical flow conditions and designated/existing uses?	X		
8. Does the facility discharge to a 303(d) listed water?	X*		
a. Has a TMDL been developed and approved by EPA for the impaired water?	X		
b. Does the record indicate that the TMDL development is on the State priority list and will most likely be developed within the life of the permit?			X
c. Does the facility discharge a pollutant of concern identified in the TMDL or 303(d) listed water?	X		
9. Have any limits been removed, or are any limits less stringent, than those in the current permit?		X	
10. Does the permit authorize discharges of storm water?		X	

\*Downstream

<b>I.B. Permit/Facility Characteristics – cont.</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
11. Has the facility substantially enlarged or altered its operation or substantially increased its flow or production?		X	
12. Are there any production-based, technology-based effluent limits in the permit?	X		
13. Do any water quality-based effluent limit calculations differ from the State's standard policies or procedures?		X	
14. Are any WQBELs based on an interpretation of narrative criteria?		X	
15. Does the permit incorporate any variances or other exceptions to the State's standards or regulations?		X	
16. Does the permit contain a compliance schedule for any limit or condition?		X	
17. Is there a potential impact to endangered/threatened species or their habitat by the facility's discharge(s)?	X		
18. Have impacts from the discharge(s) at downstream potable water supplies been evaluated?			X
19. Is there any indication that there is significant public interest in the permit action proposed for this facility?		X	
20. Have previous permit, application, and fact sheet been examined?	X		

## Part II. NPDES Draft Permit Checklist

### Region III NPDES Permit Quality Checklist – for POTWs (To be completed and included in the record only for POTWs)

#### II.A. Permit Cover Page/Administration

	Yes	No	N/A
1. Does the fact sheet or permit describe the physical location of the facility, including latitude and longitude (not necessarily on permit cover page)?	X		
2. Does the permit contain specific authorization-to-discharge information (from where to where, by whom)?	X		

#### II.B. Effluent Limits – General Elements

	Yes	No	N/A
1. Does the fact sheet describe the basis of final limits in the permit (e.g., that a comparison of technology and water quality-based limits was performed, and the most stringent limit selected)?	X		
2. Does the fact sheet discuss whether “antibacksliding” provisions were met for any limits that are less stringent than those in the previous NPDES permit?			X

#### II.C. Technology-Based Effluent Limits (POTWs)

	Yes	No	N/A
1. Does the permit contain numeric limits for <u>ALL</u> of the following: BOD (or alternative, e.g., CBOD, COD, TOC), TSS, and pH?	X		
2. Does the permit require at least 85% removal for BOD (or BOD alternative) and TSS (or 65% for equivalent to secondary) consistent with 40 CFR Part 133?	X		
a. If no, does the record indicate that application of WQBELs, or some other means, results in more stringent requirements than 85% removal or that an exception consistent with 40 CFR 133.103 has been approved?			X
3. Are technology-based permit limits expressed in the appropriate units of measure (e.g., concentration, mass, SU)?	X		
4. Are permit limits for BOD and TSS expressed in terms of both long term (e.g., average monthly) and short term (e.g., average weekly) limits?	X		
5. Are any concentration limitations in the permit less stringent than the secondary treatment requirements (30 mg/l BOD5 and TSS for a 30-day average and 45 mg/l BOD5 and TSS for a 7-day average)?		X	
a. If yes, does the record provide a justification (e.g., waste stabilization pond, trickling filter, etc.) for the alternate limitations?			X

#### II.D. Water Quality-Based Effluent Limits

	Yes	No	N/A
1. Does the permit include appropriate limitations consistent with 40 CFR 122.44(d) covering State narrative and numeric criteria for water quality?	X		
2. Does the fact sheet indicate that any WQBELs were derived from a completed and EPA approved TMDL?	X		
3. Does the fact sheet provide effluent characteristics for each outfall?	X		
4. Does the fact sheet document that a “reasonable potential” evaluation was performed?	X		
a. If yes, does the fact sheet indicate that the “reasonable potential” evaluation was performed in accordance with the State’s approved procedures?	X		
b. Does the fact sheet describe the basis for allowing or disallowing in-stream dilution or a mixing zone?	X		
c. Does the fact sheet present WLA calculation procedures for all pollutants that were found to have “reasonable potential”?	X		
d. Does the fact sheet indicate that the “reasonable potential” and WLA calculations accounted for contributions from upstream sources (i.e., do calculations include ambient/background concentrations)?		X	
e. Does the permit contain numeric effluent limits for all pollutants for which “reasonable potential” was determined?	X		

<b>II.D. Water Quality-Based Effluent Limits – cont.</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
5. Are all final WQBELs in the permit consistent with the justification and/or documentation provided in the fact sheet?	X		
6. For all final WQBELs, are BOTH long-term AND short-term effluent limits established?	X		
7. Are WQBELs expressed in the permit using appropriate units of measure (e.g., mass, concentration)?	X		
8. Does the record indicate that an “antidegradation” review was performed in accordance with the State’s approved antidegradation policy?	X		

<b>II.E. Monitoring and Reporting Requirements</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
1. Does the permit require at least annual monitoring for all limited parameters and other monitoring as required by State and Federal regulations?	X		
a. If no, does the fact sheet indicate that the facility applied for and was granted a monitoring waiver, AND, does the permit specifically incorporate this waiver?			
2. Does the permit identify the physical location where monitoring is to be performed for each outfall?	X		
3. Does the permit require at least annual influent monitoring for BOD (or BOD alternative) and TSS to assess compliance with applicable percent removal requirements?		X	
4. Does the permit require testing for Whole Effluent Toxicity?		X	

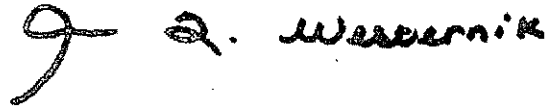
<b>II.F. Special Conditions</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
1. Does the permit include appropriate biosolids use/disposal requirements?			X
2. Does the permit include appropriate storm water program requirements?			X

<b>II.F. Special Conditions – cont.</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
3. If the permit contains compliance schedule(s), are they consistent with statutory and regulatory deadlines and requirements?			X
4. Are other special conditions (e.g., ambient sampling, mixing studies, TIE/TRE, BMPs, special studies) consistent with CWA and NPDES regulations?			X
5. Does the permit allow/authorize discharge of sanitary sewage from points other than the POTW outfall(s) or CSO outfalls [i.e., Sanitary Sewer Overflows (SSOs) or treatment plant bypasses]?		X	
6. Does the permit authorize discharges from Combined Sewer Overflows (CSOs)?		X	
a. Does the permit require implementation of the “Nine Minimum Controls”?			X
b. Does the permit require development and implementation of a “Long Term Control Plan”?			X
c. Does the permit require monitoring and reporting for CSO events?			X
7. Does the permit include appropriate Pretreatment Program requirements?			X

II.G. Standard Conditions	Yes	No	N/A
1. Does the permit contain all 40 CFR 122.41 standard conditions or the State equivalent (or more stringent) conditions?	X		
<b>List of Standard Conditions – 40 CFR 122.41</b>			
Duty to comply	Property rights	Reporting Requirements	
Duty to reapply	Duty to provide information	Planned change	
Need to halt or reduce activity	Inspections and entry	Anticipated noncompliance	
not a defense	Monitoring and records	Transfers	
Duty to mitigate	Signatory requirement	Monitoring reports	
Proper O & M	Bypass	Compliance schedules	
Permit actions	Upset	24-Hour reporting	
		Other non-compliance	
2. Does the permit contain the additional standard condition (or the State equivalent or more stringent conditions) for POTWs regarding notification of new introduction of pollutants and new industrial users [40 CFR 122.42(b)]?	X		

### Part III. Signature Page

Based on a review of the data and other information submitted by the permit applicant, and the draft permit and other administrative records generated by the Department/Division and/or made available to the Department/Division, the information provided on this checklist is accurate and complete, to the best of my knowledge.

Name	<u>Anna Westernik</u>
Title	<u>Environmental Specialist II, Senior II</u>
Signature	<u></u>
Date	<u>March 14, 2013</u>